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(54) PROPYLENE OXIDE POLYMERIZATION CATALYST COMPOSITION AND PREPARATION OF POLY(PROPYLENE OXIDE)

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a propylene oxide polymerization catalyst composition capable of controlling the molecular weight of polymers and also forming a poly(propylene oxide) having hydroxyl groups at its terminals with a comparatively high molecular weight, and a preparation process utilizing the catalyst composition.

SOLUTION: The propylene oxide polymerization catalyst composition comprises (1) a crown ether compound, (2) an alkali metal alkoxide or an alkali metal hydroxide, and (3) an organic Lewis acid in which all linkages are directly metal-bound carbon linkages not through an oxygen. A process for preparing a poly(propylene oxide) uses this polymerization catalyst composition in polymerizing propylene oxide to obtain the poly(propylene oxide).

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<p>2001-019165/03 A25 E19 (A60) KAGA- 1999.03.09 ZH KAGAKU GIJUTSU SENRYAKU SUISHIN KIKO *JP 2000256457-A 1999.03.09 1999-061615(+1999JP-061615) (2000.09.19) C08G 65/12 Composition for polymerization catalyst for propylene oxide for urethane material, contains a crown ether compound, an alkali metal alkoxide, or an alkali metal hydroxide and organic Lewis acid C2001-005697</p>	<p>A(2-A, 2-A7, 5-G3, 5-H4) E(5-A, 5-B1, 6-A2E, 6-A3, 7-A4, 33-A3)</p>
<p>NOVELTY A composition for polymerization for catalyst for a propylene oxide contains a crown ether compound, an alkali metal alkoxide, or an alkali metal hydroxide and organic Lewis acid.</p> <p>DETAILED DESCRIPTION A composition for polymerization for catalyst for a propylene oxide contains: (a) a crown ether compound; (b) an alkali metal alkoxide, or an alkali metal hydroxide; and (c) organic Lewis acid in which all bonds are bonds formed by bonding carbon to a metal without oxygen.</p> <p>USE</p>	<p>The composition is used in the polymerization catalyst for producing the propylene oxide used in producing the poly(propylene oxide). The poly(propylene oxide) is used in an urethane material, resin material, surface active agent material.</p> <p>ADVANTAGE The method produces the poly(propylene oxide) having a comparatively high molecular weight and a hydroxyl group at its terminal.</p> <p>TECHNOLOGY FOCUS Organic Chemistry - Preferred Crown Ether: The content of the crown ether compound is 1 mol or more per mol of the alkali metal alkoxide or the alkali metal hydroxide. The crown ether compound consists of one or two or more selected from the group consisting of 18-crown-6, benzo 18-crown-6, dibenzo 18-crown-6, and dicyclohexano 18-crown-6. Preferred Organic Lewis Acid: The organic Lewis acid is selected from alkyl aluminum, aryl aluminum, and/or alkyl aryl aluminum.</p> <p>JP 2000256457-A+</p>

The production of a poly(propylene oxide) comprises:
(a) obtaining the poly(propylene oxide) obtained by polymerizing the propylene oxide;
(b) using the composition for the polymerization catalyst.
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